REMARKS

Applicants would like to thank the Examiner for participating in a telephone interview on May 8, 2003. While a consensus regarding the current rejections was not reached during the interview, applicants were able to gain a better insight into the Examiner's position.

The March 6, 2003, Office Action (hereinafter "Office Action") rejected Claims 1-20 under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 6,088,739, to Pugh et al., (hereinafter "Pugh") in view of *The Dynamics of Modeling Change*, to Corkill (hereinafter "Corkill"). Claims 1-20 were also rejected under the judicially created doctrine of obviousness-type double patenting over then-copending application, now U.S. Patent No. 6,304,879, to Sobeski et al. (hereinafter "Sobeski"). With this response, Claims 1-20 remain pending in the application. Additionally, Claims 21-28 are newly added.

In view of the amendments and reasons set forth below, and pursuant to 37 C.F.R. § 1.111, applicants respectfully request reconsideration and allowance of this application. Prior to discussing the reasons why applicants believe that the pending claims are allowable, a brief description of the present invention and the cited and applied reference is presented. The following discussion of the present invention and the teachings of the applied reference are not provided to define the scope or interpretation of any of the claims of this application. Instead, they are provided to help the U.S. Patent and Trademark Office better appreciate important claim distinctions discussed thereafter.

Summary of the Invention:

The present invention is directed at providing dynamic object behavior of individual objects in an object-oriented environment. In the prior art, an individual object's defined behaviors are static. Only through recoding and recompiling the code defining the object could an individual object's behaviors be modified. For example, an object O may have been

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

programmed and compiled to perform behaviors A and B. In order to add behavior C to object O, behavior C had to be programmed into the code of object O and recompiled. Alternatively, if object O were compiled to have behaviors A, B, and C, object O could not, upon instantiation, choose to not have behavior C.

Some prior art solutions attempt to simulate dynamic behavior by clustering, or collecting a group of objects. The cluster simulates dynamic behaviors by adding and removing objects with fixed, defined behaviors, and externally exposing the behaviors of these objects. However, the cluster object used to perform the clustering, as well as the objects that are added to the cluster, all have fixed, static behaviors. In other words, while the cluster may simulate dynamic behaviors, each individual object of the cluster has only static behaviors.

In contrast to the static nature of prior art objects, the present invention provides actual dynamic object behavior in individual objects. For example, an object O with behaviors A and B may be instantiated to further exhibit behavior C without recoding and recompiling the object's source code. Alternatively, an object O with behaviors A, B, and C may be instantiated to exhibit only behaviors A and B.

According to the present invention, **when an object is instantiated**, the object determines its dynamic behaviors according to information stored in a data store. Depending on various conditions, including system environment conditions, the object may limit the instantiation of its dynamic behaviors in the data store. New behaviors may be added by appropriately modifying the data store. The behaviors of the object may be altered in the data store by an instance of the object, or by some other object or application, thereby altering the behavior of the object when it is next instantiated, without requiring recoding and recompilation of the object.

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

Summary of the Cited References

U.S. Patent No. 6,088,739 to Pugh

Pugh describes a system for object clustering. The clustering mechanism is used to simulate an entity. At the heart of this clustering mechanism is a composite object, also referred to as a cluster object, that permits the addition of other objects called role objects. Each role object has a fixed behavior. The cluster object exposes the fixed behaviors of the role objects in the cluster. Thus, by adding or removing role objects to the cluster, the cluster simulates dynamic behavioral changes.

However, Pugh does not disclose that the individual objects exhibit dynamic behaviors. In other words, each object in a cluster, including the clustering object, individually has only static, fixed behaviors. This is in clear contrast to the present invention, where individual objects may dynamically instantiate their own defined behaviors.

The Dynamics of Modeling Change (Corkill)

Corkill purportedly discloses a blackboard system where objects can be added and removed to develop a solution to a particular problem. This "blackboard" paradigm permits people to engage in a brainstorming style interaction. By adding and removing objects to the blackboard application, a dynamic solution is obtained. Thus, Corkill is able to achieve dynamism on the application level by its ability to add and remove objects to the blackboard application on the fly. However, while the combined blackboard solution may exhibit dynamic behaviors in its totality, each individual object of a solution exhibits its own, fixed behaviors.

Corkill also mentions the use of dynamic objects. Corkill describes this dynamism as arising from multiple inheritance. (Corkill, page 44, col. 2.) As is well known in the art, multiple inheritance refers to "inheriting" behaviors and other features from multiple parent/ancestor objects. However, while these inherited behaviors come from multiple parent objects, they are still static behaviors to the object. Clearly, Corkill's use of the term "dynamic"

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

to describe its objects illustrates an industry-wide abuse/overuse of the term "dynamic" when referring to object-oriented objects and programming.

In contrast to the present invention, Corkill does not disclose that individual objects can dynamically modify their defined behaviors according to data in a data store **upon instantiation of the object**. Instead, Corkill discloses that dynamism is achieved by adding and removing defined objects to a blackboard application.

The Claims Distinguished

Claim 1

Applicants respectfully submit that Pugh and Corkill, alone and in combination, fail to teach or suggest each element of independent Claim 1. In particular, the cited and applied references fail to teach or suggest "a single object having a plurality of dynamic behaviors, wherein the plurality of dynamic behaviors are defined behaviors of the object."

As previously discussed, Pugh purportedly discloses that dynamism is achieved through the use of a clustering system. Role objects are added and removed to a clustering object. The clustering object exposes the interfaces of the role objects, thereby simulating dynamic behavior for the collective whole. However, Pugh does not teach or suggest that the plurality of dynamic behaviors exhibited by a plurality of objects are defined behaviors for a single object.

As also previously discussed, Corkill also fails to teach or suggest a single object with a plurality of defined dynamic behaviors. Instead, both Corkill and Pugh achieve a simulated dynamic behavior by adding and removing objects with fixed, defined behaviors to a collection of objects. In sum, while Pugh and Corkill may externally appear as an object with dynamic behaviors, it is only an external façade to multiple objects with fixed behaviors. In contrast, the present invention claims a single object with dynamic behaviors.

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

For the reasons described above, applicants submit that Pugh and Corkill, alone and in combination fail to teach or suggest each element of Claim 1. Accordingly, applicants respectfully request that the Section 103(a) rejection of Claim 1 be withdrawn and the claim allowed.

Claims 2-8, 20

As to dependent Claims 2-8, and 20, applicants respectfully submit that because Pugh and Corkill, alone and in combination, fail to teach or suggest each element of independent Claim 1, upon which Claims 2-8, and 20, depend, the cited references also fail to disclose each element of Claims 2-8, and 20, especially when considered in conjunction with Claim 1. Accordingly, applicants respectfully request that the Section 103(a) rejection of Claims 2-8, and 20 be withdrawn and the claims allowed.

Claims 9-19

For the same reasons discussed above in regard to Claim 1, applicants respectfully assert that Pugh and Corkill, alone and in combination, fail to teach or suggest each element of Claims 9-19. In particular, while the cited references purportedly disclose a cluster of static objects collectively simulating an entity having dynamic behaviors, they fail to teach or suggest a "**single object** having a plurality of dynamic behaviors, wherein the plurality of dynamic behaviors are defined behaviors of the object." Accordingly, applicants respectfully request that the Section 103(a) rejections of Claims 9-19 be withdrawn and the claims allowed.

Claims 21-28

Claims 21 - 28 are newly added, with Claim 21 being independent, and Claims 22-28 depending from Claim 21. While these claims are not rejected claims, in order to further prosecution of the application, applicants point out that Pugh and Corkill, alone and in combination, fail to teach or suggest each element of these claims. Particularly in regard to Claim 21, Pugh and Corkill fail to teach or suggest "a single object having an interface and also

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

having a plurality of dynamic behaviors," and "the interface and the plurality of dynamic behaviors are defined for the object."

For the same reasons described above in regard to Claim 1, applicants assert that Pugh and Corkill fail to teach or suggest a single object having a plurality of dynamic behaviors defined for the object. In addition, Claim 21 further distinguishes from Pugh and Corkill by clearly identifying a single object having an interface **and** dynamic behaviors, both defined for the single object. Thus, even if the exposed interfaces described in Pugh may be viewed as "dynamic behaviors," which applicants expressly deny, Claim 21 clearly distinguishes dynamic behaviors from the interfaces of the role objects exposed by the cluster object in Pugh.

For the above described reasons, applicants assert that Claims 21-28 are non-obvious in light of Pugh and Corkill, and are in condition for allowance. Accordingly, applicants respectfully request that Claims 21-28 be allowed.

Obviousness-Type Double Patenting Rejection

In regard to the obviousness-type double patenting rejection of Claims 1-20, applicants respectfully submit that the present invention is patentably distinct from, and non-obvious in view of Sobeski. Sobeski describes a data cache object that temporarily stores dynamic data. While the values stored in a Sobeski type object are transitory, the Sobeski object's behavior, i.e., temporarily storing the transitory data, is a **static behavior**. In contrast, the present invention is directed at **dynamic behaviors** of an individual object. Thus, whether or not the dynamic behaviors of an object formed in accordance with the present invention may change according to temporarily cached data, the behaviors are dynamic behaviors, whereas the Sobeski object's behaviors (including temporarily storing data) are static behaviors.

As a further illustration of the differences between the present invention and Sobeski, the temporarily cached data in Sobeski is a run-time behavior of an object. In other words a Sobeski

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

object must be created/instantiated before it can store temporary data. Alternatively, according to the present invention, the dynamic behaviors for an object are determined at instantiation of the object, i.e., as it is created. These object features clearly operate at different periods in an object's "lifetime," and are patentably distinct from each other.

For the reasons mentioned above, applicants respectfully assert that the present invention is patentably distinct from that described in Sobeski, and would not be obvious to those of ordinary skill in the art in view of Sobeski. Accordingly, applicants request that the judicially created double patenting rejection of Claims 1-20 be withdrawn and the claims allowed.

CONCLUSION

In view of the amendments and remarks above, the applicants respectfully submit that the present application is in condition for allowance. Reconsideration and reexamination of the application, as amended, and allowance of the claims at an early date are solicited. If the Examiner has any questions or comments concerning the foregoing response, the Examiner is invited to contact the applicants' undersigned attorney at the number below.

Respectfully submitted,

CHRISTENSEN O'CONNOR
JOHNSON KINDNESS PLLC

Tracy S. Powell
Registration No. 53,479
Direct Dial No. 206.695.1786

I hereby certify that this correspondence is being deposited with the U.S. Postal Service in a sealed envelope as first class mail with postage thereon fully prepaid and addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the below date.

Date: August 29, 2003 Lori G. Lewis

TSP:lal

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100